



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/809,548	03/15/2001	Steven H. Reichman	RL-1970	5475

7590 05/12/2005

Allegheny Technologies Incorporated
1000 Six PPG Place
Pittsburgh, PA 15222

EXAMINER

JOHNSON, STEPHEN

ART UNIT	PAPER NUMBER
----------	--------------

3641

DATE MAILED: 05/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/809,548	Applicant(s) REICHMAN, STEVEN H.	
	Examiner Stephen M. Johnson	Art Unit 3641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-14,16-19,21-23,45,46 and 55-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-11,16-19,21-23,45,46 and 55-58 is/are rejected.
- 7) ☒ Claim(s) 12-14 is/are objected to.
- 8) ☒ Claim(s) 1,4-14,16-19,21-23,45,46 and 55-58 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 3641

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 55 is rejected under 35 U.S.C. 102(e) as being anticipated by Ishida et al..

Ishida et al. disclose a plate comprised of:

- a) a metallic material that is a shape memory alloy; and col. 1, lines 45-51
- b) a plate. col. 1, lines 8-11

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 57 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al. in view of Scully et al..

Ishida et al. apply as previously recited. However, undisclosed is an armored vehicle associated with an armor plate. Scully et al. teach an armored vehicle associated with an armor plate, see entire disclosure. Applicant is substituting one material type of armored plate for another as explicitly encouraged by the secondary reference (see col. 1, lines 51-62 of Scully et al.). It would have been obvious to a person of ordinary skill in this art at the time of the

Art Unit: 3641

invention to apply the teachings of Scully et al. to the Ishida et al. plate and have a plate used in combination with an armored vehicle.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 4-6, 9-10, 17, 45, and 55 are rejected under 35 U.S.C. 102(b) as being anticipated by Mori et al..

Mori et al. disclose an armor comprising :

a) at least one energy absorbing layer of a shape memory alloy; 2, col. 7, lines 54-56

b) at least one second layer of a metallic material; 4

c) metallurgical bonding to the at least one energy absorbing layer; 7, col. 8, lines 34-46

d) a third plate. 1 or 5

7. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori et al. in view of Jackson et al. or Buehler et al..

Mori et al. apply as previously recited. However, undisclosed is a shape memory alloy that is 55-Nitinol. Jackson et al. and Buehler et al. each teach the use of a 55-Nitinol shape memory alloy (see entire disclosures). Applicant is substituting one shape memory alloy composition for another as explicitly taught by the primary reference (see col. 5, line 54-col. 6, line 15). It would have been obvious to a person of ordinary skill in this art at the time of the invention to apply the teachings of Jackson et al. or Buehler et al. to the Mori et al. disclosure and have a device with a different type of shape memory alloy.

Art Unit: 3641

8. Claims 1, 4-10, 17, 45-46, and 55-58 are rejected under 35 U.S.C. 102(e) as being anticipated by Ashmead.

Ashmead discloses an armor comprising :

- a) at least one energy absorbing layer having an elastic strain deformation of at least 5%; 1, 3, 5; col. 2, lines 14-17
- b) at least one second layer of a metallic material; 11
- c) metallurgical bonding to the at least one energy absorbing layer; col. 3, lines 11-12
- d) a third plate of a metallic material. 13

9. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ashmead in view of Vecchio.

Ashmead applies as previously recited. However, undisclosed is an attachment means that is diffusion bonding. Vecchio teaches an attachment means that is diffusion bonding to hold adjacent layers together (col. 19, lines 38-43). Applicant is substituting one attachment means for another as explicitly encouraged by the primary reference (see col. 3, lines 10-12 and 62-64 of Ashmead). It would have been obvious to a person of ordinary skill at the time of the invention to apply the teachings of Vecchio to the Ashmead device and have a device with a different type of plate attachment means.

10. Claims 55 and 57 are rejected under 35 U.S.C. 102(e) as being anticipated by Jardine.

Jardine discloses an armor comprising :

- a) at least one energy absorbing layer that is a shape memory alloy; Ti Ni layer; col. 4, lines 3-10
- b) at least one second layer of a metallic material; PZT layer; col. 3,

Art Unit: 3641

lines 24-27

c) adhesively bonding to the at least one energy absorbing layer; col. 6, lines 57-60

d) a third plate of a metallic material; and PZT layer; col. 3,
lines 24-27

e) a vehicle. col. 1, lines 5-21

11. Claims 1, 4-6, 9-11, 17-18, 45-46, 56, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jardine in view of Ashmead.

Jardine applies as previously recited. However, undisclosed is a means for attaching the sheets together that is welding. Ashmead teaches a means for attaching sheets together that is welding (col. 3, lines 7-12). Applicant is substituting one attachment means for another in an analogous art setting as explicitly encouraged by the secondary reference (see col. 3, lines 7-12 and 62-64 of Ashmead). It would have been obvious to a person of ordinary skill in this art at the time of the invention to apply the teachings of Ashmead to the Jardine disclosure and have a means for attaching the plates that is welding.

12. Claims 7-8, 19, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jardine in view of Ashmead as applied to claims 1, 4-6, 9-11, 17-18, 56, and 58 above, and further in view of Jackson et al. or Buehler et al..

Jardine and Ashmead apply as previously recited. However, undisclosed is a shape memory alloy that is 55-Nitinol. Jackson et al. and Buehler et al. each teach the use of a 55-Nitinol shape memory alloy (see entire disclosures). Applicant is substituting one shape memory alloy composition for another as explicitly taught by the primary reference (see col. 2, lines 24-27 of Jardine). It would have been obvious to a person of ordinary skill in this art at the time of

Art Unit: 3641

the invention to apply the teachings of Jackson et al. or Buehler et al. to the Jardine and Ashmead disclosure and have a device with a different type of shape memory alloy.

13. Claim 55 is rejected under 35 U.S.C. 102(b) as being anticipated by Tsilevich.

Tsilevich discloses an armor comprising :

- a) at least one energy absorbing layer of a shape memory alloy; 37
- b) a plate. 37 (see fig. 3)

14. Applicant's arguments are addressed as follows. The claim limitations directed to metallurgical bonding are not found in claim 55. With regard to the issue of whether zig-zag plate 37 can properly be considered to be a plate. Please note that plate 37 zig-zags from left to right (see fig. 2) with flate front and rear faces (see fig. 3).

14. Claims 12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Johnson whose telephone number is 571-272-6877.

The examiner can normally be reached on Tuesday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 571-272-6873. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 800-786-9199.

Application/Control Number: 09/809,548

Page 7

Art Unit: 3641



STEPHEN M. JOHNSON
PRIMARY EXAMINER

Stephen M. Johnson
Primary Examiner
Art Unit 3641

SMJ

May 6, 2005